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**Report No. P-1322-KO**

**REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT  
TO THE  
EXECUTIVE DIRECTORS  
ON A  
PROPOSED LOAN  
TO  
THE REPUBLIC OF KOREA  
FOR A  
SEEDS PROJECT**

**October 10, 1973**

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Currency Unit	=	Won
Won 400	=	US\$1.00
Won 1,000	=	US\$2.50
Won 1,000,000	=	US\$2,500
Fiscal Year	=	January 1 - December 31

REPORT AND RECOMMENDATION OF THE PRESIDENT  
TO THE EXECUTIVE DIRECTORS ON A PROPOSED LOAN  
TO THE REPUBLIC OF KOREA FOR A SEEDS PROJECT

1. I submit the following report and recommendation on a proposed loan to the Republic of Korea for the equivalent of US\$7.0 million to help finance a seeds project. The loan would have a term of 25 years, including seven years of grace, with interest at 7-1/4 percent per annum. USAID is presently processing a loan of US\$5.0 million for crop research.

PART I - THE ECONOMY

2. The latest economic report ("The Economic Situation and Prospects of the Republic of Korea", EAP-33a) was distributed under cover of R72-243, dated November 9, 1972. The Country Data Sheet is attached as Annex I. An Economic Mission has just returned from the field.

3. The 1972 report commented on Korea's outstanding achievement in economic development, particularly since the middle of the 1960's, and noted that Korea's economy was in transition from a situation of high investment and growth associated with inflation to one of more moderate growth and greater stability. The most important feature of the transition phase has been a slowdown in economic activity since the middle of 1971, partly induced by external factors but latterly also as a result of the Government's stabilization policy. The GNP growth in 1972 of 7.1 percent, compared with the average 11.4 percent in the previous five years, was the lowest since 1966, mainly because of slower expansion of industrial production (16 percent, compared with the average 21 percent during the previous five-year period), and a decline in investment (which was 11 percent less than in 1971).

4. The Government's stabilization efforts, particularly the measures taken in August 1972 to check inflation and at the same time moderate the disruptive financial impact of the economic slowdown on Korea's business sector, seem to be working successfully to bring about a favorable environment for stable growth. Wholesale prices have been much more stable since August 1972 after having increased by 8.5 percent in 1971 and at the same rate in the first eight months of 1972. Recent international currency revaluations are likely to cause some unavoidable upward pressure, but this should not jeopardize basic price stability provided the Government continues to follow its stabilization program. Signs of recovery in industrial production and investment were visible towards the end of 1972 and some acceleration of economic expansion has been experienced in 1973. Prospects for export expansion and further import substitution also seem very favorable and can be expected to accommodate fairly rapid growth without balance of payments difficulties.

5. Two basic aspects of the stabilization policy require continued emphasis in the future. First, domestic savings mobilization, which has emerged as a major constraint on future economic development, must be pursued vigorously. In the process of economic slowdown in the past two

years the savings ratio declined from 18 percent in 1969-70 to about 15 percent in 1972. Undoubtedly it will recover somewhat this year, as the pace of business activity accelerates. However, long-term improvement depends very much on further refinement of the financial system and the development of capital markets. The Government is making valuable efforts toward improved savings in a setting of stability through a restrained 1973 budget and through measures aimed at improving and diversifying savings instruments. Second, in the light of the expected investment revival, it is important to keep overall investment under restraint for some time to come so that the objectives of the stabilization policies are not jeopardized. The Government's investment policy for 1973 takes this into account and emphasizes increases in agricultural and manufacturing investment while restraining investment in social overheads and services. In view of the need to strengthen further the industrial structure and also to correct urban/rural income disparities through increased rural development, this investment policy should be appropriate for the remainder of the Third Five-Year Plan period (1972-76).

6. If the economy is managed along the lines discussed above, a gradual and continued improvement in the balance of payments can be expected in the coming years. With strong import demand from the United States and Japan - Korea's major export markets - merchandise exports increased by about 46 percent in 1972. They are expected to continue to expand rapidly in 1973, perhaps at the 1972 rate. A larger and more diversified industrial sector will be able to provide the needed export capability and to assist import substitution efforts, particularly in intermediate industrial goods. Although increases in imports also are expected as the economy recovers, the trend towards closing the trade gap seems already established. With some immediate loss in exchange earnings related to the military establishment in Korea and Vietnam in addition to the increase in debt payments, external borrowing requirements are expected to be particularly large in the next two years, about US\$900 million gross a year. At this level, assuming a real GNP growth rate of 8.6 percent, they will remain within manageable limits, both in terms of Korea's debt-carrying capacity and the availability of external finance. Borrowing requirements could begin to decline after 1975 and the debt service ratio, now at 16 percent, is expected to decrease gradually to the neighborhood of 14 percent by 1976, due mainly to the favorable export outlook.

7. The Government's external borrowing policy aims at increasing the proportion of external finance provided by official lenders with a view to improving further the average borrowing terms. Also, with more modest growth targets, increased emphasis on rural works and a gradual shift towards producing its own capital goods, Korea's need for external loans to finance imported machinery and equipment for large projects will be reduced, although the total amount of industrial investment and the foreign exchange requirements thereof will remain high in absolute amount.

8. A higher proportion of official loans in total borrowing will require greater efforts by the Government to prepare projects suitable for official lending; and official lenders will need to provide a larger

proportion of their financial assistance in a form usable for local expenditure particularly if the Government succeeds in preparing an expanded agricultural investment program. In these circumstances, some local currency expenditure financing by the Bank Group is appropriate.

## PART II - BANK GROUP OPERATIONS IN KOREA

9. As at August 31, 1973, Korea had received 11 Bank loans and 8 IDA credits amounting in total to US\$410.5 million in loans and US\$107.0 million in credits (taking into account cancellations and the refinancing of one IDA credit in a subsequent Bank loan).

10. Of the US\$517.5 million, about one-half has been for the transport sector - US\$119.7 million for railways, US\$54.5 million for highways and US\$80 million for ports. The Korea Development Finance Corporation (KDFC) has received US\$95 million in Bank loans for relending to private industry. US\$110.5 million has gone to agricultural projects - US\$93 million for irrigation projects, US\$7 million for livestock development and US\$10.5 million for the provision of medium- and long-term credit through the National Agricultural Cooperative Federation. The balance of US\$57.8 million was to the education sector.

11. IFC has made four investments in Korea and its commitments amount to US\$3.4 million in loans and shares. (A fifth investment in the Atlas Paper Co. amounting in total to US\$5 million was cancelled at the request of the Company). IFC made its first equity investment in KDFC, of US\$0.7 million or 14 percent of KDFC's then paid-in capital, at the time the Bank made its first loan to KDFC. In 1971, IFC purchased US\$0.6 million of the shares of the Korean Investment and Finance Corporation - a new institution whose function is to assist in the development of the capital and money markets. The Executive Directors approved on July 24, 1973 the exercise of preemptive rights to purchase at par about US\$355,000 equivalent of KDFC's common stock. Prospects for further IFC investments in Korea are good.

12. Of total Bank and IDA lending, US\$346 million remained undisbursed as at August 31, 1973. This is mainly due to the fact that withdrawals under several of the large loans made within the past two years commenced recently. The rate of disbursement has increased over the past year.

13. Annex II contains a summary statement of Bank loans, IDA credits, and IFC investments as at August 31, 1973, and notes on the execution of on-going projects. As indicated in the notes, progress on project implementation is now generally satisfactory although difficulties have been encountered with some projects; and most seriously with the Pyongtaek-Kumgang Irrigation Project (Loan 600-KO).

14. The FY 1974 operations program tentatively includes four projects, in addition to the seeds project. Two of these, a tourism project and a second highways project, have been appraised. The other two (an agricultural products processing project and a secondary cities development project) are

expected to be appraised before the end of calendar year 1973. This program is in accord with a major objective of the current Third Plan viz, the narrowing of the income gap between the urban and rural sectors through increased agricultural investments. The proposed agricultural products processing project will aim at increasing on-farm and processed production of agricultural commodities through the provision of credit to farmers, packers and processors. The proposed secondary cities project will assist in the development of the Kwangju area, which is a poor, agricultural region in the southwest of the country. Bank assistance for the development of this area has so far focussed on agriculture through the Yong San Gang river basin project (Loan 795/Credit 283-K0) and on transport development through completion of sections of the Chonju/Busan national highway linking Kwangju and Suncheon with the national primary highway system. The proposed project will assist in the implementation of the next stage of Government's regional strategy involving investments in industrial estates, urban infrastructure, housing and recreational facilities with a view to developing regional alternatives to the already overcrowded major cities of Seoul and Busan. The tourism project is intended to exploit the tourism potential of the Kyongju area. Besides providing the necessary facilities, it will expand the water supply system and provide a sewerage and solid waste disposal system for the City of Kyongju. The construction of a dam to control flooding and to provide the water supply source will also permit the undertaking of a small irrigation project.

15. The emphasis on agricultural and rural development will be reflected in the operations program for the succeeding years FY 1975 and FY 1976. The project under consideration includes feasibility studies of future irrigation and area development projects in the Okseo, Naeseong Cheon and Hwang Gang regions. The report of the agriculture sector mission, which has recently been discussed with the Government, should provide the basis for developing additional high priority agricultural projects. A second livestock project and agriculture credit project, a forestry project and the second stage of the Yong San Gang project have already been identified.

16. The other major emphasis in Korea's Third Plan, which is supported by the Bank's economic analysis, is the transition from light to heavy industrial development. The Bank's lending to industry in Korea has been through the KDFC. The Government's long-term industrial strategy is being examined by Bank staff and may lead to some project financing.

17. The development of the industrial and agricultural sectors will require concurrent infrastructure development. Although the transport sector will be given less emphasis than in the past, the investments required are large and thus there is considerable support for this sector in the program.

18. The annual level of Bank Group support through FY 1976 is expected to be of the same order as the average for the last three years. As indicated in paragraph 6, external borrowing requirements may decline after 1975 unless the Government decides to set higher growth and investment targets.

19. The share of the Bank Group in Korea's total external debt (disbursed and outstanding) at the end of 1971 was 3.8 percent, and the share in the debt service was 0.6 percent in the same period. If the Bank Group's average annual rate of investment of the past three years continues (US\$115-120 million), its share in the total amount of external debt outstanding will increase sharply to about 10.0 percent by 1978 while the debt service share would increase to about 7.0 percent.

20. The Consultative Group continues to be active. Bilateral assistance to Korea increased from US\$71 million in 1966 to US\$281 million in 1971, with the U.S.A. and Japan being the principal donors, providing some 97 percent of the total bilateral assistance of US\$908 million during that period.

### PART III - THE AGRICULTURE SECTOR

21. Agriculture plays a major role in the economy of Korea. It employs almost half of the total labor force, accounts for nearly 30 percent of GNP, and provides raw materials and markets for a large share of Korea's dynamic industrial sector. However, agriculture's importance in the economy as measured by its share of total employment, GNP, and total exports has declined in the last decade, and agricultural production has not kept pace with growing market requirements, especially for food grains, causing the trade deficit for agricultural products to rise from US\$64 million in 1961 to US\$362 million in 1971. Income gains of the rural population have lagged far behind those in the urban areas. Real incomes of farm households increased about 60 percent from 1961 to 1971 while those of urban households more than doubled in spite of a large migration from rural to urban areas and substantial increases in the prices of farm products under Government programs introduced in 1967.

22. During the first and second five-year plan periods (1962-1966 and 1967-71), rapid industrial growth was the major objective of Korea's development strategy and the urban industrial sector absorbed the greater share of investment resources. Manufacturing output rose 20 percent annually and industrial exports 40 percent annually. Output of the agricultural sector including forestry and fishery, which received only about 6 percent of total public investment during the first two plan periods, increased at the rate of 3.5 percent annually. The failure of agricultural output to keep pace with rising market requirements (especially for food and food grains) and of rural incomes to keep pace with those in the urban areas has caused the Government to place greater emphasis on achieving more rapid growth in the agricultural sector. The major objectives of the new development strategy are:

- (a) to achieve a more equitable income distribution and improve rural infrastructure to meet social needs;

- (b) to accelerate expansion in food grain production and in particular attain greater self-sufficiency in rice; and
- (c) to conserve and develop land and water resources to build up the resource base for expanding agricultural output in the future.

23. Korea is a hilly and mountainous country with about 67 percent of the land area classified as suitable for forestry, grazing or other extensive land uses. Cultivated land, about 23 percent of the total, is located mainly in river valleys and in small plains along the western and southern coasts and amounts only to 0.07 ha per person. Most of the land suitable for intensive use has been brought under cultivation and it has become costly to develop additional land for crop production. Rice and barley are the major crops grown, accounting for 66 percent of the total crop area and 57 percent of total value of production in 1971. Other food crops (soybeans and other pulses, potatoes and miscellaneous cereals) grown mainly in the upland areas account for some 18 percent of the crop area and 9 percent of total crop value.

24. Nearly 15 million people, almost half of the nation's total, live in 2.5 million farm households mainly located in about 35,000 rural villages. Land holdings per household are small and highly fragmented which makes mechanization difficult. As a result of land reform carried out after World War II, most farmers own the land they cultivate. In 1971, total net income was \$964 per farm household of which about 20 percent was from non-farm sources. There has been little change in total farm population or in the average size of land holdings in the last decade, about 4.5 million people having migrated from rural to urban areas.

#### Crop Production

25. Crop production is the major sub-sector within agriculture, accounting for some 75 percent of total value added to GNP by agriculture in 1971. Total crop production increased by 3.4 percent annually during 1961-71. However, the output of basic food crops (rice, barley and other cereals, pulses and potatoes) increased at 2.5 percent annually. Rice, which accounted for 36 percent of the total area under crops and 44 percent of the total value of the crops produced in 1971, increased only 1.5 percent annually during the 1961-71 period.

26. Food grain production has not expanded sufficiently rapidly to meet the increasing demand resulting from population and income growth. Imports of rice, wheat and barley increased to 2.8 million tons in 1972 compared with about 500,000 tons annually in the early 1960's. High priority is now being given by Government to food grain output expansion so as to achieve a greater degree of self-sufficiency. The Third Plan calls for annual increases in grain production from 1970 to 1976 of 3.6 percent, 3.3 percent, 5.3 percent and 14 percent for rice, barley, wheat and corn respectively. It also calls for large increases in soybeans and other



pulses, fruits and vegetables. To achieve these targets, the Government is implementing programs for land and water resource development, farm mechanization, price support, credit and marketing.

27. The achievement of higher yields per hectare is of crucial importance in view of the limited extent of cultivable land. The Korean performance already surpasses that of most other Asian countries particularly in respect of rice, barley and wheat. Further increases are both possible and necessary. The provision of good quality seed at the farm level and the supply of improved varieties through further research are among the means required to increase crop yields. The project under consideration has been formulated with these objectives in mind. It includes arrangements for the production, processing and distribution to farmers of high quality potato, rice, barley, wheat and soybean seed and for supporting additional research.

#### Agricultural Institutions

28. The Ministry of Agriculture and Fisheries (MAF) (particularly its Agricultural Production Bureau) has major responsibilities for planning and supervising agricultural development programs, but they are carried out mainly by special agencies such as the Office of Rural Development (ORD), the National Agricultural Cooperative Federation (NACF) and the National Agricultural Products Inspection Office (NAPIO). The ORD has responsibility for agricultural research and rural guidance (extension) employing about 800 research scientists and about 6,000 rural guidance workers. The NACF is a nation-wide organization comprising about 1,800 primary cooperatives and 148 special purpose cooperatives for marketing, livestock, horticultural and other crops. It operates about 6,000 rural stores. About 90 percent of all farmers are members. It carries out Government price support programs, provides credit and insurance to farmers, markets farm products on its own account and distributes production inputs to farmers. IDA Credit No. 335-KO of 1972 increased NACF's resources for medium-term lending to farmers. NAPIO is responsible for the inspection and regulation of quality control for the agricultural products, including all seeds marketed in Korea. MAF is advised on overall seed policy by the National Seeds Council (NSC), which is chaired by the Vice-Minister of MAF and has broad representation from Government and the Universities.

#### PART IV - THE PROJECT

29. The proposed project was prepared with the assistance of the FAO/IBRD Cooperative Program. It was appraised in February/March 1973 by a Bank/FAO team. Negotiations were held from September 10-14, 1973 with a Government team led by Mr. Kwan Shik Chai, Assistant Minister, Ministry of Agriculture and Fisheries.

30. The existing Government sponsored seeds program produces more than 40,000 tons of field crop and potato seed each year. However, with seed production widely dispersed in the villages and with insufficient equipment and antiquated production, processing and storage methods, the

quality of seed available for general use is poor. Farmers are reluctant to use the Government seeds because of their low quality. The proposed project would help solve the problems of seed varietal mixtures, low germination and seed-borne disease inherent in the existing system. It would also provide the means for developing new higher-yielding varieties and the rapid multiplication and distribution of the new seeds under quality controlled conditions. At full development, an estimated 11,000 tons of paddy, 5,000 tons of barley, 1,000 tons of wheat, 500 tons of soybean and 10,850 tons of potato would be produced, processed, stored and distributed as Certified seeds. (The term "Certified seed" is used to define the commercially marketed seed originating from the plant breeder's controlled genetic material and meeting minimum standards of purity and quality.)

#### Detailed Features

31. The project would finance (a) the installation of five field crop seed processing and storage facilities of about 3,500 tons capacity each and six seed potato facilities of about 2,000 tons each; (b) farm machinery for seed production; (c) a revolving fund for procuring seasonal seeds inventories; (d) seed testing laboratories and equipment; (e) crop research; (f) feasibility studies for irrigation and area development; and (g) technical assistance. Annex III contains the loan and project summary. The report "Appraisal of Korean Seeds Project" (No. 202a-KO) is being circulated separately to the Executive Directors.

32. The five field crop seed processing and storage facilities are to be in areas where perennially irrigated land, markets, electricity and transport facilities are available and also where groups of farmers interested in producing seeds are located. The potato processing and storage plants are to be placed in an area of Gang Weon Do province above 800 m elevation to facilitate the control of potato virus diseases.

33. The farm machinery is required to ensure the timely planting and harvesting of the crops to permit double cropping on the available irrigated lands. The Office of Seed Production and Distribution (OSPD) which is to be set-up under the MAF with responsibility for carrying out the Government program for the production, processing, packaging and distribution of Certified seed, will purchase the equipment and hire it to the contract seed growers. It will use the revolving fund to purchase the seed from the growers immediately after it is harvested and to carry the necessary seed inventories until they are processed, distributed and sold three to nine months later. NAPIO will be provided with laboratory equipment for quality control purposes.

34. Despite the significant achievements in agricultural research, there is need for additional well-trained research scientists and supporting laboratories, field research stations and other facilities. A seed program of the type to be introduced requires a stream of new higher yielding varieties flowing from the research agencies to replace outdated existing varieties. ORD's research resources will be strengthened by a research program estimated

to cost US\$8 million, of which US\$5 million would be forthcoming from an USAID loan. During the next five years, the USAID loan will provide for about 75 man-years of expatriate technical assistance, the training of ORD and College of Agriculture staff and additional equipment and facilities. The research will concentrate on improving cereal grains, soybeans, potato and forage crops.

35. The proposed loan will finance the foreign exchange cost of two feasibility studies as a part of this project. One study will test the feasibility of the proposed Okseo Irrigation and Area Development Project to be located adjacent to the Pyongtaek-Kumgang Irrigation Project being financed with a Bank loan (Loan 600-KO). The Okseo project would improve irrigation and drainage facilities for some 80,000 ha. The second study would be for the integrated development of two watershed areas: Naeseong Cheon (178,000 ha) and Hwang Gang (133,000 ha). Both studies would evaluate integrated projects tailored to the needs of the areas concerned involving, inter alia, irrigation, water supply, and community development. The Agricultural Development Corporation (ADC) has the major responsibility for the completion of feasibility studies, design and construction of irrigation and area development projects. Expatriate consultants to be financed under the proposed project will assist ADC in preparing the studies.

#### Organization and Management

36. MAF would be responsible for overall supervision of project investments and coordination of the relevant departments, agencies and provincial governments. The OSPD will be a separate agency in the MAF and would be clothed with sufficient financial and managerial autonomy and powers to carry out the project and to implement a more effective national seeds program. It is to be established pursuant to the provisions of the Seeds Law, which is to be amended to make it more effective. The Law at present does not provide for the registration and regulation of Certified field crop and potato seed growers or for the licensing of seed dealers and regulation of the quality of seeds they market. The foreign exchange cost of a consultant to advise on the amendments to the Law is included in the proposed loan. The Government has undertaken to establish the OSPD within 12 months of the date of loan effectiveness. Detailed terms and conditions relating to its establishment, staffing and operations are set out in Schedule 5 to the draft Loan Agreement. No disbursement would be made, except for consultants, until these conditions have been fulfilled.

37. OSPD would contract with a farmers' cooperative (FLIA) near each plant site for the production of the required quantity of seed and would procure, process, store and distribute Certified seed throughout the country mainly through NACF. ORD would expand its crop breeding work and provide OSPD with Registered seed of the new higher yielding varieties for multiplication by contract farmers and distribution through NACF to farmers. Consultants would be hired to advise and train local staff in seed production, processing, distribution and quality control. Overseas scholarships for selected local staff are also provided for.

Cost Estimates and Financing Arrangements

38. The project, as proposed, is estimated to cost US\$22.84 million (Won 9,132 million), which would be financed as follows:

	<u>ROK</u>	<u>USAID</u>	<u>IBRD</u>	<u>TOTAL</u>
	----- (US\$ million) -----			
I. Seed Production and Processing	6.731		4.026	10.757
II. Registered Seed Farms	.004		.093	.097
III. Seed Certification	.123		.343	.466
IV. Crop Research	3.000	5.000		8.000
V. Feasibility Studies and Technical Assistance	.600		.900	1.500
VI. Contingencies	<u>.382</u>	<u>      </u>	<u>1.638</u>	<u>2.020</u>
Total	<u>10.840</u>	<u>5.000</u>	<u>7.000</u>	<u>22.840</u>

The total estimated cost of US\$22.84 million is made up of a foreign exchange component of US\$11.91 million and local costs of US\$10.93 million. The proposed Bank loan will finance US\$6.85 million of the foreign exchange cost and US\$0.15 million of local costs. The USAID loan will finance the foreign exchange cost of the research component.

Procurement

39. All contracts for civil works and machinery and equipment for the five field crop seed processing plants and the six seed potato storage facilities would be awarded on the basis of international competitive bidding in accordance with the Bank's Guidelines for Procurement, as will the farm machinery and vehicles. Other equipment (including seed potato processing equipment, seed certification laboratory equipment and office equipment) costing less than US\$50,000 when bulked, would be procured directly from local or international suppliers. Civil works for the NAPIO laboratories (estimated to cost \$78,000 in total) are too small to be of interest to foreign firms and would be tendered locally. In the case of international tenders for machinery and equipment, domestic bidders offering goods of substantially Korean manufacture would be allowed a margin of preference of 15 percent or the actual import duty, whichever is lower, over the c.i.f. price of competing imports.

Disbursement

40. Disbursement of the proposed Bank loan will be for (i) the c.i.f. or ex-factory cost (less identifiable taxes and duties) of all farm machinery, vehicles and seed quality control equipment; (ii) 100 percent of the total

cost of seed plant equipment, including installation and test operation costs but less identifiable taxes and duties; it is estimated that this would involve local cost financing of some US\$145,000; (iii) 68 percent of the total cost of civil works, which represents the foreign exchange component of such cost; and (iv) the foreign exchange cost of consultant services and overseas training. Retroactive financing in an amount not exceeding US\$300,000 is proposed to cover the cost of consultant services provided after September 1, 1973. These services are required urgently to initiate project actions for the OSPD and for the feasibility studies.

41. The project is expected to be completed by June 30, 1978. The first of the five field crop plants would be ready to receive seed by October 1976 and the remaining four by June 1977. Construction at the Provincial ORD Registered potato seed farm and of one potato storage plant would be completed by October 1975 and the remaining four one year later.

42. During the 30 year estimated life of the proposed project, the OSPD would recover its full costs (i.e. administration and overhead, procurement, processing, storage, distribution, plant repair and maintenance and loan service charges) from the sale of seeds. To recover these costs, field crop and potato seed prices would have to be 65 percent and 165 percent respectively above the 1972 harvest prices. Farmers may be unwilling to pay prices reflecting these mark-ups until the benefits of using the good quality seed are proven. In the first year, it is expected that mark-ups would be 40 percent on field crop seed and 120 percent on potato seed, increasing over three or four years to the levels at which full costs can be recovered. Losses incurred during the early years as a result of this pricing policy would be considerably less than the US\$1 million presently lost by the Government seed operation each year and would be met from OSPD's annual budget.

#### Benefits and Justification

43. Use of project Certified seed by farmers is expected to result in yield increases of 6 percent for paddy, 12 percent for barley and wheat, 10 percent for soybeans and 50 percent for virus-free potato. At these rates of increase, the project's economic rate of return (ERR) would be 48 percent. If yield increases of only half of these rates were obtained, the return would be about 23 percent. With 15 percent higher investment costs and 25 percent lower sales volume, the rate of return would be 33 percent.

44. Increased production of some 80,000 tons of food grains, 7,500 tons of oilseeds and 60,000 tons of potato, which is expected annually as a result of the more effective seeds program, will, at estimated 1980 world market prices, result in a foreign exchange saving of about US\$14 million. The project will also increase the level of income of about 500,000 farmers, about a fifth of the total number of farmers in Korea. The estimated net incremental farm income per hectare accruing to farmers who use the project Certified seeds would be about US\$250 for potato, US\$45 for paddy, US\$34 for naked barley, US\$29 for regular barley and US\$25 for wheat. The proposed project is therefore in accord with the Government's objectives of increasing

agricultural production to achieve a greater degree of self-sufficiency and of enhancing farm earnings so as to reduce the existing disparity between rural and urban incomes.

PART V - LEGAL INSTRUMENTS AND AUTHORITY

45. The draft Loan Agreement between the Republic of Korea and the Bank, the Report of the Committee provided for in Article III, Section 4 (iii) of the Articles of Agreement and the text of a resolution approving the proposed loan are being distributed to the Executive Directors separately. The effectiveness of the proposed Bank loan is conditional on the fulfillment of the conditions precedent to the first disbursement of the USAID loan for crop research. The draft agreement conforms to the normal pattern of loans for seed projects.

46. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Bank.

PART VI - RECOMMENDATION

47. I recommend that the Executive Directors approve the proposed loan.

Robert S. McNamara  
President

Attachments

October 10, 1973

COUNTRY DATA - KOREA

AREA: 2  
98,477 km<sup>2</sup>

POPULATION:  
32.5 million (1971)<sup>a/</sup>  
Rate of Growth: 2.0% (1971)

DENSITY:  
330 per km<sup>2</sup> (1971)

POPULATION CHARACTERISTICS:

Crude Birth Rate (per 1,000): 28.0 (1971)  
Crude Death Rate (per 1,000): 8.0  
Infant Mortality (per 1,000 live births): ..

HEALTH: (1969)

Population per physician: 1,236  
Population per hospital bed: 1,914

INCOME DISTRIBUTION:<sup>b/</sup>

% of national income, lowest quintile: 8  
highest quintile: 43

DISTRIBUTION OF LAND OWNERSHIP:<sup>c/</sup>

% owned by top 10% of owners: 24.3%  
% owned by smallest 10% of owners: 1.5%

ACCESS TO PIPED WATER:

..

ACCESS TO ELECTRICITY:

% of population - urban: ..  
- rural:

NUTRITION:

Calorie intake as % requirements: ..  
Per capita protein intake: ..

EDUCATION:

Adult literacy rate % (1970) 85%  
Primary school enrollment % (1970): 96.9%

GNP PER CAPITA: 280 (US \$ 1971)<sup>d/</sup>

GROSS NATIONAL PRODUCT IN 1972 (\$1 : 400 Won)<sup>e/</sup>

	\$	%
GNP at market prices	9602	100.0
Gross investment	2004	20.9
Gross National Savings	1404	14.6
Current Account Balance	617	6.4
Exports of Goods, NFS	2020	21.0
Imports of Goods, NFS	2598	27.1

ANNUAL GROWTH RATE (% constant prices)<sup>f/</sup>

	1960-65	1965-70	1971	1972
	5.8	11.3	9.8	7.1
	15.3	33.2	6.3	-11.0
	151.5	46.1	8.9	2.1
	20.1	38.0	26.1	38.3
	24.0	37.6	10.1	39.0
	8.7	31.0	11.0	6.2

OUTPUT, LABOR FORCE AND PRODUCTIVITY (1971):

	Value Added		Labor Force		Value Added per Worker	
	(US\$ million)	%	(million)	%	(US \$)	%
Agriculture	2558	29.1	4.71	48.5	543	60
Industry (Mining and Manufacturing)	1954	22.2	1.38	14.2	1,416	156
Services and Other	4279	48.7	3.62	37.3	1,182	131
	8792	100.0	9.71	100.0	905	100

PUBLIC FINANCES (W billion)

	All Governments		Central Government <sup>g/</sup>	
	1972	% of GNP	1972	% of GNP
Current Receipts	690	18.0	514	13.4
Current Expenditures	523	13.6	467	12.2
Capital Receipts	278	7.2	154	4.0
Capital Expenditures	486	12.7	242	6.3
External Assistance (net)	41	1.1	41	1.1

a/ Average for the year.

b/ Rough synthetic estimates based on urban and farm household surveys in 1970 and 1971.

c/ Data based on acreage cultivated by farm households. Data on ownership are not available.

d/ Based on the World Bank "Atlas" methodology. US\$276 per capita on the basis of the 1971 current exchange rate.

e/ Preliminary estimates based on partial data.

f/ 1965 prices for 1960-71; 1970 prices for 1972. 1972 data are preliminary.

g/ Administrative budget of the central government.

COUNTRY DATA - KOREA

MONEY, CREDIT AND PRICES	1965	1969	1970	1971	1972(3rd Q) <sup>1/</sup>
Money and Quasi Money	97.1	670.7	890.8	1037.6	1326.4
Bank Credit to Public Sector	15.7	3.4	- 13.5	- 24.5	- 35.7
Bank Credit to Private Sector	78.6	640.6	861.1	1124.4	1372.1

(Percentages or Index Numbers)

Money and Quasi Money as % of GDP	12.2	33.2	35.2	34.5	..
General Price Index (1963=100) <sup>h/</sup>	148.2	197.8	216.0	234.6	255 <sup>1/</sup>
Annual Percentage Changes in:					
General Price Index	10.0	6.8	9.1	8.6	8.5 <sup>1/</sup>
Bank credit to Public Sector	110.0	- 53.0	- 397.0	- 83.0	30.1 <sup>k/</sup>
Bank credit to Private Sector	4.8	46.7	72.6	46.9	28.2 <sup>k/</sup>

BALANCE OF PAYMENTS

MERCHANDISE EXPORTS (f.o.b.)  
<sup>1/</sup>(AVERAGE, 1969-71)

	1970	1971	1972		
	(Millions US \$)	(Millions US \$)	(Millions US \$)		%
Exports of Goods, NFS	1341.0	1507.2	2184	Clothing	226 26.8
Imports of Goods, NFS	2106.7	2514.7	2677	Wood & Cork	101 12.0
Resource Gap	- 765.7	- 927.5	- 493	Veneer Sheets & Plywood	98 11.6
Interest Payments (net)	59.8	87.5	673	Textiles	96 11.4
Other Factor Payments (net)	- 22.8	3.1		Wigs, etc.	77 9.1
Net Transfer Receipts	93.6	105.6	110	Electric Machines	
Balance on Current Account <sup>h/</sup>	- 709.1	- 912.5	- 519	& Equipment	49.7 5.8
				Others	194.0 23.3
Direct Foreign Investment	38.0	55.8			841.7 100.0
Net MLT Borrowing	214.0	327.2			
Disbursements	(417.0)	(553.0)			
Amortization	(203.0)	(225.8)	675	EXTERNAL DEBT, DECEMBER 31, 1972:	
Official Grants	86.6	65.0		(Million US \$)	
Other Capital (net)	447.5	382.9			
Increase in Reserves	- 60.8	68.5	- 156	Public Debt (including undisbursed)	.. <sup>m/</sup>
All other items	- 16.2	13.1	7.0	Total Outstanding and disbursed	2679.0 <sup>o/</sup>
Gross Reserves	610	568	691		

DEBT SERVICE RATIO (1972):

In % of Exports of Goods/ Services 16.1<sup>o/</sup>

RATE OF EXCHANGE:

December 31, 1971	June, 1972 <sup>n/</sup>
US \$1.00 = 370 Won	US \$1.00 = 400 Won
W 1.00 = \$.0027	W 1.00 = \$.0025

IBRD/IDA LENDING, August 31, 1973  
(Million US \$)

	IBRD	IDA
Outstanding & Disbursed	119.8	47.6
Undisbursed	286.8	59.2
Outstanding including Undisbursed	406.6	106.8

<sup>h/</sup> Wholesale Price Index.

<sup>i/</sup> End of September.

<sup>j/</sup> End of the year data.

<sup>k/</sup> Annual percentage change from end-3rd Quarter of 1971.

<sup>l/</sup> Preliminary estimate based on partial data. For this reason, some discrepancy exists between BOP data and national income data for 1972.

<sup>m/</sup> 3021.8 at end-1971.

<sup>n/</sup> Currently effective.

<sup>o/</sup> Estimate.



THE STATUS OF BANK GROUP OPERATIONS IN THE REPUBLIC OF KOREA

A. STATEMENT OF BANK LOANS AND IDA CREDITS (as at August 31, 1973)

Loan or Credit Number	Year	Borrower	Purpose	US \$ million Amount (less cancellations)		
				Bank	IDA	Undisbursed
Four loans and credits fully disbursed.				5.0	39.7	-
600	1969	ADC	Irrigation	45.0		29.3
151	1969	Republic of Korea	Education		14.8	11.2
622	1969	KDFC	Dev. Fin. Co.	20.0		1.9
669	1970	Republic of Korea	Railway	40.0		3.1
234	1971	Republic of Korea	Livestock		7.0	3.5
735	1971	KDFC	Dev. Fin. Co.	30.0		11.4
769	1971	Republic of Korea	Highway	54.5		25.4
283	1972	Republic of Korea	Irrigation		15.0	14.6
795	1972	ADC	Irrigation	33.0		32.7
335	1972	Republic of Korea	Agricultural Credit		10.5	9.9
863	1972	Republic of Korea	Railway	40.0		40.0
905*	1973	KDFC	Dev. Fin. Co.	40.0		40.0
906 and 394*	1973	Republic of Korea	Education II	23.0	20.0	43.0
917**	1973	Republic of Korea	Ports	<u>80.0</u>	<u>      </u>	<u>80.0</u>
Total				410.5	107.0	346.0
of which has been repaid				<u>3.9</u>	<u>0.2</u>	
Total now outstanding				406.6	106.8	
Amount sold				1.3		
of which has been repaid				<u>-</u>	<u>1.3</u>	
Total now held by Bank and IDA (prior to exchange adjustment)				<u>405.3</u>	<u>106.8</u>	<u>      </u>
Total undisbursed				<u>286.8</u>	<u>59.2</u>	<u>346.0</u>

\* Declared effective on September 10, 1973.

\*\* Declared effective on September 18, 1973.

B. STATEMENT OF IFC INVESTMENTS (as at August 31, 1973)

<u>Year</u>	<u>Obligor</u>	<u>Type of Business</u>	<u>Amount in US\$ million</u>		
			<u>Loan</u>	<u>Equity</u>	<u>Total</u>
1968	KDFC	Development financing	-	0.7	0.7
1969	Honan Silk Co.	Textiles	1.4	0.3	1.7
1970	Atlas Paper Co.	Pulp and Paper	4.5	0.5	5.0*
1971	Korea Investment and Finance Corp.	Money and Capital Markets	-	0.6	0.6
1973	KDFC	Development financing	-	0.4	0.4
		Total gross commitments	5.9	2.5	8.4
		less cancellations, terminations repayments and sales	4.5	0.5	5.0
		Total commitments now held by IFC	1.4	2.0	3.4
		Total undisbursed	0.1	-	0.1

\* Cancelled at the request of the Company

PROJECTS IN EXECUTION <sup>1/</sup>

1.            Loan No. 600            Pyongtaek-Kumgang Irrigation Project;  
   US\$45.0 million Loan of May 23, 1969  
   Closing Date: June 30, 1975

This is the first major irrigation project constructed in Korea. It was expected at appraisal that it would irrigate about 35,000 ha. of land, improve drainage and roads, consolidate all paddy fields, terrace upland and reclaim tidal land. The start of construction was postponed by a major reorganization of the executing agency and delay in hiring consultants; the project is now one year behind schedule. Detailed designs for the farm distribution system and land development disclosed that certain areas included in the project are not suitable for gravity irrigation. The net irrigable area now appears to be around 28,000 ha. Project costs are expected to be higher than appraised, mainly due to higher unit prices. Re-examination of the economic analysis indicates a reduction in the rate of return from 14 percent to 11 percent using revised rice prices and around 7 percent if prices expected during appraisal are used. Disbursement is 58 percent behind even when a one-year postponement is applied to the appraisal report schedule. Construction, however, is now progressing satisfactorily, and all work is scheduled for completion by the end of 1975.

2.            Credit No. 151            First Education Project; US\$14.8 million  
   Credit of June 4, 1969  
   Closing Date: December 31, 1974

This project comprises: (a) the expansion and equipment of 27 technical high schools, 5 post secondary technical schools and 4 university teacher training departments; and (b) 26 man-years of technical assistance, 20 man-years of overseas fellowships to support the development of agricultural and/or technical education and to assist educational planning.

Project implementation is about 18 months behind schedule because, in its initial stage, delays occurred in the establishment of the project unit, the selection and appointment of architects and the formulation of equipment procurement procedures. The project is now progressing satisfactorily, but it is expected that because of the initial delays, it will be completed about one year later than estimated at appraisal. This may require a postponement of the Closing Date by six months to June 30, 1975.

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<sup>1/</sup> These notes are designed to inform the Executive Directors regarding the progress of projects in execution, and in particular to report any problems which are being encountered, and the action being taken to remedy them. They should be read in this sense, and with the understanding that they do not purport to present a balanced evaluation of strengths and weaknesses in project execution.

3.        Loan No. 669                      Third Railway Project; US\$40.0 million Loan  
            Credit No. 183                      and \$15.0 million Credit of May 14, 1970  
   Closing Date: December 31, 1975

The bulk of the Loan and Credit was earmarked for the purchase of specific equipment required, namely, freight cars, diesel locomotives, telecommunications and track maintenance equipment. Progress is generally satisfactory except for delays in the procurement of some microwave equipment which caused the Closing Date of the Loan to be postponed from August 31, 1973 to December 31, 1975.

4.        Credit No. 234                      Integrated Dairy Beef Development Project;  
   US\$7.0 million Credit of February 11, 1971  
   Closing Date: March 31, 1977

The development of about 700 small and medium-size dairy farms by providing long-term loans and the construction and operation of two dairy products processing plants are the principal components of the project which also includes management and technical services related to these activities. The project is progressing satisfactorily. To date, nearly 200 Korean farmers have participated. Following international competitive bidding, 1,600 dairy heifers have been purchased and a contract for the supply of dairy processing equipment awarded; planning and construction of civil works for the two dairy processing plants are well underway; technical services are being strengthened; and applied research for livestock production is bringing significant results.

5.        Loan No. 622 &                      Second and Third KDEFC Projects; US\$20.0  
            Loan No. 735                      million and US\$30.0 million Loans of  
   June 26, 1969 and May 17, 1971 respectively  
   Closing Dates: December 31, 1973 and  
   August 31, 1975 respectively

These projects are progressing satisfactorily. Both Loans are fully committed.

6.        Loan No. 769                      First Highways Project; US\$54.5 million  
   Loan of June 29, 1971  
   Closing Date: November 30, 1975

The project includes the construction of approximately 230 miles of primary national highways between Chonju and Busan; feasibility studies of about 870 miles; and detailed engineering of an additional 680 miles. A highway maintenance study is also being undertaken and a national highway maintenance organization established on a pilot basis in one of the provinces. Construction is on schedule and within cost estimates.

7.            Loan No. 795            Yong San Gang Irrigation Project;  
              Credit No. 283        US\$33.0 million Loan and US\$15.0 million  
                                 Credit of February 2, 1972  
                                 Closing Date: September 30, 1977

This is the second major irrigation project financed by the Bank in Korea. It aims at transforming an area with the highest drought frequency in Korea into one with year-round irrigation and crop diversification. Also there will be increased production of high-value crops. The Loan/Credit became effective on September 15, 1972. Detailed surveying and designing are proceeding satisfactorily and construction has begun on three of the four dams. Cost estimates have increased by about 19 percent mainly because of right-of-way costs, more dam foundation grouting than expected at appraisal, and major changes in designs. About 1,400 ha. of additional land have been added to the project through revision of original canal lines, thereby providing benefits which offset the increased costs. Insufficient funds were budgeted originally for 1973, but the Government after Bank urging has provided adequate Won financing for the year so that construction can proceed on schedule. The need for adequate funds in future years has been discussed with the Government.

8.            Credit No. 335            Agricultural Credit Project; US\$10.5 million  
                                 Credit of September 29, 1972  
                                 Closing Date: September 1, 1976

This credit supports a three-year lending program for the development of orchards, agriculture, mushrooms and to encourage poultry and swine production. A supervision mission visited Korea in July 1973 and reported that the demand for agricultural credit was strong. The Project still retains the potential to improve farmers' income. However, due to the poor selection of Kun Cooperatives and the lack of training and technical services, the Project has so far not been implemented as planned. Further loans have been suspended, pending proper training of officials at both NACF and Kun Cooperative levels, together with a more efficient selection of cooperatives and an improvement in technical services. These measures have been agreed with the Government and will be implemented over the next few months. Loans will be resumed thereafter. The Project is then expected to achieve its stated objective of increasing production and farmers' income. A supervision mission scheduled for November this year will review progress made in the implementation of the necessary measures.

9.            Loan No. 863            Fourth Railway Project; US\$40.0 million  
                                 Loan of November 22, 1972  
                                 Closing Date: December 31, 1976

The main elements of the project are: electrification of lines in the Seoul suburban area; purchase of electric railcars and locomotives; the completion of electrification of 350 kms of line running from Seoul to the northeastern part of Korea; track and bridge renewal; provision of yard facilities; acquisition of passenger and freight cars; and improvement of facilities for the maintenance and repair of motive power and rolling

stock. The Loan was declared effective on February 26, 1973. A recent supervision mission reports that the authorities concerned need to take measures to speed up procurement which is falling behind schedule.

10.        Loan No. 905                      Fourth KDPC Project; US\$40.0 million  
   Loan of June 13, 1973  
   Closing Date: December 31, 1977

This Loan was declared effective on September 10, 1973.

11.        Loan No. 906                      Second Education Project; US\$23.0 million  
                 Credit No. 394                      Loan and US\$20.0 million Credit of  
   June 13, 1973  
   Closing Date: December 31, 1977

The project provides equipment for 18 technical and 14 agricultural high schools; 10 higher schools/junior colleges for industrial, agricultural, fishery and nursing training; colleges of agriculture, engineering and natural sciences in nine universities and a merchant marine college; and 10 junior teacher colleges and 12 colleges of education. It also includes pre-investment studies on health and management education and staff development. This Loan was declared effective on September 10, 1973.

12.        Loan No. 917                      Ports Project; US\$80.0 million  
   Loan of June 27, 1973  
   Closing Date: June 30, 1979

The project includes container and bulk cargo facilities and equipment at Busan and coal piers and handling equipment at Mukho. Consultants will be hired for technical assistance to the proposed Korea Port Authority and to conduct a Phase II Port Development Study. This Loan was declared effective on September 18, 1973.

KOREA - SEEDS PROJECT  
LOAN AND PROJECT SUMMARY

Borrower: The Republic of Korea

Amount: US\$7.0 million equivalent

Terms: The loan would be for 25 years, including a seven-year grace period, at 7-1/4 percent interest per annum

Project Description: The project would consist of:

- (a) the installation of five field crop seed processing and storage facilities of about 3,500 tons capacity each and six seed potato facilities of about 2,000 tons each;
- (b) farm machinery for seed production;
- (c) a revolving fund for seed procurement;
- (d) seed testing laboratories and equipment for quality control;
- (e) staff, equipment and training for crop research;
- (f) feasibility studies of the Okseo and Naeseong Cheon and Hwang Gang irrigation and area development areas; and
- (g) technical assistance to assist in project implementation and advise and train staff in seed production, processing and distribution.

Estimated Cost:

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
	<u>US\$'000</u>		
1. Seed Production and Processing	6,852	3,905	10,757
2. Registered Seed Farms	4	93	97
3. Seed Certification	123	343	466
4. Crop Research	3,000	5,000	8,000
5. Feasibility Studies	600	900	1,500
6. Contingencies			
Physical Price	169 <u>183</u>	420 <u>1,248</u>	589 <u>1,431</u>
	352	1,668	2,020
Total	<u>10,931</u>	<u>11,909</u>	<u>22,840</u>

Financing Plan:

	ROK		USAID		IBRD		Total
	US\$ '000	% of Total	US\$ '000	% of Total	US\$ '000	% of Total	Project Costs US\$'000
1. Seed Production and Processing	6,731	29.5			4,026	17.6	10,757
2. Registered Seed Farms	4				93	0.4	97
3. Seed Certification	123	0.6			343	1.5	466
4. Crop Research	3,000	13.1	5,000	21.9			8,000
5. Feasibility Studies	600	2.6			900	3.9	1,500
6. Contingencies	<u>382</u>	<u>1.7</u>			<u>1,638</u>	<u>7.2</u>	<u>2,020</u>
Total	<u>10,840</u>	<u>47.5</u>	<u>5,000</u>	<u>21.9</u>	<u>7,000</u>	<u>30.6</u>	<u>22,840</u>



Estimated Disbursements:

<u>Bank Fiscal Year</u>	<u>(US\$ million)</u>	
	<u>Annual</u>	<u>Cumulative</u>
1974	0.6	0.6
1975	0.9	1.5
1976	2.7	4.2
1977	2.1	6.3
1978	0.7	7.0

Procurement Arrangements:

All contracts estimated to cost US\$50,000 or more would be awarded on the basis of international competitive bidding in accordance with the Guidelines for Procurement under World Bank Loans and Credits (April 1972). Contracts estimated to cost less than US\$50,000 would be tendered locally on the basis of procedures acceptable to the Bank. Domestic manufacturers would be allowed a margin of preference of 15 percent or the applicable customs duty, whichever is lower, over the c.i.f. price of competing imports for machinery and equipment.

Payments under Bank-approved consultants' contracts from September 1, 1973 would be eligible for retroactive financing.

Consultants:

Consultants would be engaged (i) to assist in project implementation and advise and train staff in seed production, processing and distribution and (ii) to carry out the two feasibility studies.

Rate of Return:

The economic rate of return to Korea is estimated to be about 48 percent. If the estimated incremental yields were reduced by half, the rate of return would be about 23 percent.



